



## The species in crisis: *Varanus bengalensis*

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### General Note

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### ABSTRACT

*V. bengalensis* is a monitor lizard found all over India. This lizard is ground dwelling and prefers the shady places and build nests in sand dunes and mud tunnels. Due to ever expanding urbanization, habitat loss of this species is on rise and because of that this animal is entering the households where people kill it due to several orthodox beliefs. In the present article, observations on Varanus-human conflicts have been discussed and conservation strategies have been highlighted for protecting this important species.

**Keywords:** Lizard, orthodox believes, conservation, behavior, habitat

## SUMMARY

Extensive urban developments, rapid industrialization, a network of roads and railway tracts have fragmented the diverse natural habitats into small pockets. These changes have exerted extraordinary pressure on the survival of wild fauna and flora. The isolated small populations of animals in fragmented stretches of habitats has resulted in inbreeding depression which further leads to the genetic impoverishment which is the root cause of the decline in wildlife diversity. The monitor lizard, *Varanus bengalensis*, although distributed throughout Indian subcontinent (1), is facing the challenge of shrinking habitats and adapting continuously to the new evolving niches.

This large sized monitor lizard, *V. bengalensis*, has a varied color ranging from black to dark gray or brown (2) (figure 1). The lizard can grow up to 175 cm (1) and can attain body mass up to 9.5 kg (2). Unlike the other varanid lizards, *V. bengalensis* has a diverse form of habitat which ranges from the desert areas to floodplains and scrubland to forests (3). Its preferred habitats include the dry land with bushy vegetation, ponds, canals and beels (3). Although *V. bengalensis* have a wide range of habitat preferences, rapid urbanization has deprived this species of its natural habitat (4). Monitor lizard is adapting continuously to survive in the changing environments. Originally, *V. bengalensis* has evolved all the body characteristics of a ground-dwelling animal but due to habitat loss and increased threats on land, the monitor is adopting to climb on trees, household doors and crevices and walls of old buildings (figure 1). Presently, in urban areas, *V. bengalensis* is also found in rainwater gutters wherein they meet their temperature requirements, these animals bask and move in dry drains.

*V. bengalensis* is strictly carnivorous and consumes insects, fishes, frogs, mouse, crustaceans, eggs and young ones of birds and carcasses of dead animals (3) but we observed it feeding on the household vegetables and fruits may be due to diminished potential prey population because of extensive use of pesticides.

Roads and running vehicles also directly affect the habitat of several animals (2, 5). Roads transversing through the habitats have fragmented and isolated the populations of the animals. Various animals were killed by vehicles while migrating and crossing over roads (2). *V. bengalensis* also found to be disturbed by the vehicles, traffic and busy roads (4). We observed that the land monitors run into adjacent households (figure 1) on approaching of the vehicles to seek shelter in order to avoid getting crushed. The traffic also found to disturb the foraging behavior of *V. bengalensis* indicated by the observations of Abayaratna and Mahaulpatha (2006), who reported that lizard is preferred to forage in the absence of vehicles (4).

Elevating temperature year by year is another key factor which is influencing the behavior and choice of habitats in *V. bengalensis*. Monitor lizards are poikilotherms and their body temperature increases with the corresponding increase in surrounding temperature. As a result of which, they move to shady habitats (4). Today, due to anthropogenic activities, the thick vegetation habitats have been diminished which previously were dominated. Loss of vegetation and shady calm places exposed the *V. bengalensis* to direct sunlight which correspondingly resulted in raised body temperature thus mortality. These factors have cumulatively forced the *V. bengalensis* exploring the new area including human habitats and households (figure 1).

According to IUCN Red List, *V. bengalensis* is considered as the least concerned species in terms of conservation priorities (6) but its population size is decreasing at an alarming rate. The primary reason for population decline, according to our investigations, is the killing of this animal by local people due to lack of awareness about the importance of this lizard. People hunt the *V. bengalensis* for meat consumption as well as for skin sale. We also discovered several false beliefs among local peoples which cause immense harm to these monitors. Rural people believe that if a tongue of a land monitor is eaten by inserting in a ripe banana, it will give super memory to the child (2, 4). Another common belief is that chewing the tail of a land monitor strengthens the gums (2) and the flesh of a land monitor is a remedy for convalescents (2, 4). Since the land monitor rarely drinks water from the water outlet, people believe that if a person eats the flesh of a land monitor, he will never suffer from wheeze (2). The oil of *V. bengalensis*, extracted from the fat bodies of lizard is used for the treatment for failing vision, arthritis, rheumatism, piles and muscular pains and for cooking purpose in extreme winters (2). Recently we have encountered the two cases of killing *V. bengalensis* by the local inhabitants even without any valid reasons. On interviewing the concerned people we found that they killed the *V. bengalensis* because they think it is poisonous and can injure them by biting. We also found some local hunters who prepare the powder of the hemipenis of *V. bengalensis* which, according to them, is used for male childbirth. It is because of these false and unscientific beliefs, the illegal trade of this lizard is on rise. Apart from the anthropogenic interventions, habitat destruction, fragmentation and irrational use of pesticides are challenging the existence of this important species (6).

*V. bengalensis* is a valuable asset in nature and deserves conservation as they maintained the ecological balance by scavenging the harmful insects, toad, eggs and dead animals (2). The steps in conservation programme of this species can include the

implementation of strict laws to stop killing, rational use of pesticides and planned urbanization, the creation of special green belts and dry terrain for the maintenance of tunnels for egg laying and survival. The aggressive campaign among masses and tribes should be initiated to reinforce the awareness among peoples to conserve this important species.



**Figure 1** *V. bengalensis* climbing on the door of a household.

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### Conflict of Interest

Authors declared that there is no potential conflict of interest.

### Authors contributions

All authors have equally contributed to the present work

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### REFERENCE

1. Rahman KM, Khan M, Rakhimov I. Scavenging Behavior of the Bengal Monitor (*Varanus bengalensis*) in Jahangirnagar University Campus, Bangladesh. Journal of Scientific Research & Reports. 2015;7(7):539-50.

2. Dey SK. Population, breeding and conservation of Bengal monitor, *Varanus Bengalensis* in Bangladesh: University of Dhaka; 2017.
3. Rahman K, Rakhimov I. Habitat preference and feeding ecology of the Bengal monitor (*Varanus bengalensis*) in nature, Bangladesh. *Международный научно-исследовательский журнал*. 2015(11 (42) Part 3):96-8.
4. Abayaratna M, Mahaulpatha W. Activity budgets and habitat preference of land monitor, *Thalagoya Varanus bengalensis* in a residential area. *Vidyodaya J of Sci*. 2006;13:127-38.
5. Manju S, Sharma RK. Constraint Habitat and Adaptative Behavioral Changes in *Hemidactylus Flaviviridis*. *International Journal of Pure and Applied Zoology*. 2014;2(2):111-2.
6. Mijanur RK, Iliazovic RI. Consequences of habitat loss and habitat fragmentation on the survival of monitor lizard populations in Bangladesh: a review and prospectus. *J Bio Env Sci*. 2016;8(2):139-45.